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BIOGRAPHIES OF SELECTED SOVIET SCIENTISTS

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BIOGRAPHIES OF SELECTED SOVIET SCIENTISTS

[Following is the translation of a series of biographies on Soviet scientists. The articles have been taken from various periodicals and the source and author, if any, are given at the beginning of each translation.]

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S. N. KRITSKIY

Following is the translation of an unsigned article in
Gidrotekhnicheskoye stroitel'stvo [Hydraulic Engineering],
No 3, Moscow, 1961, pp. 62-63.

S. N. Kritskiy was born on 31 December 1900 in Samara, the son of a highway engineer. After completion of his secondary schooling in 1917 he entered the Tomsk Engineering Institute, from whence he transferred to the Moscow Institute of Transportation Engineers, graduating in 1926. In the first six years following completion of the institute S. N. Kritskiy worked on the Vodokanalproyekt (All-Union Trust for the Design, Planning, and Study of Water Supply and Sewer Systems); during this period his specific duties consisted in directing the planning of the hydraulic facilities for the Stalinogorsk Chemical Works.

From 1932 until 1937, S. N. Kritskiy served in the military as an instructor, then as head of the Hydraulic Structures Department of the V. A. Kuybyshev Military Engineering Academy. In 1937, he was assigned to the newly formed Moscow Planning Board for the Building of the Kuybyshev Water Works, as it was then known prior to its reorganization as the Gidroproyekt (State Trust for the Study, Planning, and Design of Hydraulic Structures), where he worked as head of the Department of Hydrology and Water Economy. Since that time S. N. Kritskiy has been with the Gidroproyekt, taking charge of all planning in connection with hydrology and water control. He participated directly in the development of the Volga-Don Waterways Project, the Kuybyshev and Stalingrad waterworks, and a whole series of other hydraulic constructions. At the same time S. N. Kritskiy has conducted original scientific research, applying and testing the results obtained by his researchers in solving practical problems. In creative collaboration with M. F. Menkel he established a new and original Soviet scientific school in the theory of water control, in particular, the theory of regulating river flow. Their proposed methods of hydrological and control analysis have been universally adopted in those Soviet organizations in charge of hydraulic planning, and they have gained wide recognition outside the Soviet Union. S. N. Kritskiy has published more than 50 scientific works, including the definitive monographs entitled River Flow Calculations (1934), Prevailing Winter Thermal Conditions of Rivers, Reservoirs, and Canals (1946), Hydrological Principles of River Engineering (1950), Hydraulic-economic Calculations (1952).

From 1944 until 1959 S. N. Kritskiy paralleled his work on the Gidroproyekt with his tremendous contribution to the Academy of Sciences of the USSR, where he became known as an outstanding scientist (in the

Section on the Scientific Analysis of Hydraulic-control Problems and -- in more recent years -- in the G. M. Krzhizhanovskiy Power Institute). During this period he devoted considerable attention to the groundwork for new scientific groups to study the water control.

For many years S. N. Kritskiy has been a member of the Scientific-Engineering Council of the Head Administration of the Hydrometeorological Service of the USSR and the Engineering Council of the Ministry of the Building of Electrical Power Stations, as well as member of the Commission of Experts in the Military Academy of Hydraulic Engineering and Improvement. He is regularly asked to serve on governmental commissions of experts in connection with the largest hydraulic engineering projects.

The productive and scientific activity of S. N. Kritskiy has brought him the highest recognition of the government; he was twice awarded the Order of the Workers Red Flag, the Order of the Red Star, and various medals of the USSR. His book, Hydrological Principles of River Engineering, won the Stalin Prize.

The engineering world salutes its comrade with best wishes for continued good health, creative energy, and many years of fruitful labor in the field of Soviet hydraulic engineering science.

SERGEY VASIL'YEVICH KRAVKOV

Following is the translation of an article by Prof. V. V. Meshkov in Svetotekhnika (Illumination Engineering), No 3, Moscow, 1961, pages 16-18.

One fact clear to every illumination engineer is that the majority of problems in illumination engineering could not possibly be solved without knowledge of the laws governing the behavior of the visual processes and the relations between the quantitative criteria of these processes and the conditions of illumination. Consequently, one could not expect to be a well-rounded illumination engineer without a knowledge of the principles of physiological optics -- a branch of science in which physics, physiology, and illumination engineering are merged.

One of the founders of the Soviet scientific school in the area of physiological optics was Corresponding Member of the AN SSSR (Akademiya Nauk SSSR: (Academy of Sciences of the USSR) and the AMN (Akademiya Meditsinskikh Nauk SSSR, (Academy of Medical Sciences of the USSR), a dedicated servant to science, Prof. Sergey Vasil'yevich Kravkov.

Ten years have passed since the death of S. V. Kravkov, and still his research in many problems of physiological optics and illumination hygienics retain their timeliness and scientific significance.

On 16 March 1951 Soviet science lost a great scientist, a talented experimentalist, a follower of the classical motions of the Russian physiological school of Sechenov and Pavlov.

It was more than 40 years ago, at the Institute of Biological Physics of the Narkomzdrava (People's Commissariat of Public Health), that the young scientist S. V. Kravkov conducted his first investigations (see Ref 1) under the direction of P. P. Lazarev on the brightness and duration of after images. In these investigations, the brightness differences and durations of after-images from different colored radiations of identical brightness were established for the first time.

As a result of this work the author was able to make certain positive statements concerning the causes of the color constancy of different phases of a white light after-image. By studying after-images he was also able to verify the hypothesis of P. P. Lazarev concerning their photochemical nature. In this work he applied his original method of direct photometry of an after-image test spot, projected on a black field, to measure the brightness of the after image. Continuing his research on the visual sensation of after radiation, Sergey Vasil'yevich turned his attention to the color difference between successive (meta-) contrast and complementary contrast (see Ref. 2), and to the laws of color adaptation.

In later works S. V. Kravkov devoted considerable space to studying the adaptation process, successive contrast, electrical sensitivity of the visual analyzer, and other aspects of the visual process that are connected with after radiation.

In the academic year 1928-1929 S. V. Kravkov began a lecture course, "The Physiology of Vision and Illumination Hygiene," designed for illumination engineering specialists at the Moscow Higher Institute of Engineering. This course represented a basic generalization of the enormous amount of experimentation done on the visual process under various conditions of illumination.

On the basis of this generalization and the application of his own personal experiments, S. V. Kravkov published in 1930 a monograph, Glaz i yego rabota [The Eye and its Functions], which has survived 20 years and four printings (see Ref. 3.) This monograph has been a remarkable textbook, serving the educational needs of more than one generation of hygienists, physiologists, and illumination engineers. Notwithstanding the thirty-year lifespan of the first edition of this superlative book, it remains today as the principal reference work of most illumination engineers.

In the monograph Glaz i yego rabota considerable attention is devoted to the dependence of the sensitivity and functional capability of the visual analyzer on the conditions of illumination of the observed object and to the laws of color vision. In preparing the many sections of this monograph the author has made ample use of his personal experimentation. The chapter presented in greatest detail and thoroughness is that on color vision. In this section of physiological optics Sergey Vasil'yevich treated every aspect of color vision from the viewpoint of the trichromatic theory.

In the fourth printing of the monograph the author analyzes in detail the first ideas of the trichromatic theory of color vision, ideas stated by the great Russian scholar M. V. Lomonosov long before they made their appearance in the western world (see Ref. 4). After his analysis of the tremendous work of M. V. Lomonosov and the very fact of its publication in 1757, fortyfive years prior to the publication of Thomas Young on the theory of color vision, S. V. Kravkov was justified in his conclusion that Russian science is indeed the leader in this field. Sergey Vasil'yevich rightfully called the trichromatic theory of color vision the Lomonosov-Young-Helmholtz theory. The monograph was ahead of its time in that the author used mathematical apparatus to describe the quantitative laws of radiation acting on the eye and the visual sensation elicited by it, in order to describe certain aspects of the visual process.

Throughout all of his scientific activity Sergey Vasil'yevich spent a great deal of time on the investigation of the various problems of color vision. Many of the published works of S. V. Kravkov and his students (L. P. Galochkin, O. A. Dobryakov, L. I. Seletskaya, E. N. Semenovskaya, L. A. Shvarts, P. A. Yakovlev, and others) dealt with the subject of the nature of color sensation by the methods of secondary stimulants acting on the individual functions of color vision. These investigations demonstrated the countering action of inadequate stimulants on the color sensitivity of the visual analyzer to homogeneous radiations from the green-blue orange-red parts of the spectrum. Thus, for example, they discovered the enhancement of color sensitivity to green-blue radiations

under the influence of strong noise, odors, and the action on the observer of certain pharmacological products (adrenalin, ephedrine, allantoin). Other secondary stimulants (hyperventilation of the organism, action of pilocarpine, veronal, and other pharmacological substances) caused enhancement of the sensitivity of orange-red and depression of the sensitivity to green-blue radiation.

It was established by the school of S. V. Kravkov that the critical flicker frequency of homogeneous radiations, the size of the field of vision under conditions of different colored illumination, extended object sensitivity to homogeneous radiations, and other functions of color vision also are affected by secondary stimuli, depending on the wavelength (chromaticity) of the radiation studied.

The results of such investigations, confirmed by experiments on the influence of potassium and calcium ions on color sensitivity, prompted Sergey Vasil'yevich to conceive the mechanism of the above effect in terms of a variation in concentration in the neuron synapses of acetylcholine -- the substance controlling the transmission of an excitation to the next neuron of the ocular nerve fiber (see Refs. 5, 6).

In the first chapter of his monograph Tsvetovoye zreniye [Color Vision], Sergey Vasil'yevich subjected to sharp criticism the so-called "specific energy laws of the sensory organs" brought forth by Johannes Muller at the end of the first half of the last century. In this scientifically substantiated criticism of the idealistic reasoning of J. Muller, S. V. Kravkov stood resolutely on the postulates of the Marxist-Leninist theory of reflection, basing his discussion on the empirical laws of the interaction of the sensory organs. From the postulates of materialistic philosophy, S. V. Kravkov considered all the laws governing the interaction of the sensory organs, which had been repeatedly investigated by himself and his students. Generalizations of these investigations were described in an original monograph entitled Vzaimodeystviye organov chuvstva [Interaction of the Sensory Organs], published not too long before the death of its author.

Sergey Vasil'yevich Kravkov was one of the founders of the Commission on Physiological Optics at the Biological Institute of the AN SSSR. In June of 1941 the first volume of the literary organ of this commission, Problemy fiziologicheskoi optiki [Problems of Physiological Optics], was published. Sergey Vasil'yevich was one of the originators of this publication, which is now known extensively throughout the world. The first ten issues of Problemy were put out with the active participation of S. V. Kravkov, who served first as associate editor, later as editor-in-chief. During the ten years of its existence under the direction of Sergey Vasil'yevich Kravkov, Problemy raised a number of new questions of principal interest in the area of color vision, electrophysiology of the visual analyzer, action of secondary stimulants, etc., thus promoting the incorporation of new methods of objective research on the visual process and its various individual stages.

Typically, President of the AN SSSR Academician, S. I. Vavilov, delivering the opening speech at the Third All-Union Conference on

Physiological Optics, remarked: "...I can say with no reservation whatsoever that the theoretical foundation of modern optics, paralleling the physical science of light, is above all physiological optics, and it should be given our utmost concern."

It is safe to say that in bringing about the conditions meritizing this high esteem accorded physiological optics as an independent branch of science no small role was played by Soviet physiologists, physicists, and illumination engineers, foremost among them Sergey Vasil'yevich Kravkov. An outspoken exponent of the science of vision, Sergey Valis'yevich spent much time on the ways to stimulate interest in physiological optics. His lectures for the Society for the Dissemination of Political and Scientific Information and his lay brochures (see Ref. 8) are worthy of the highest praise, for they combine the wisdom of a great scientist with his ability to communicate to the lay population the most complex problems of the interaction of the human organism with radiation.

A typical feature of the scientific activity of Sergey Vasil'yevich was the close bond maintained between his research and the problems of illumination engineering in applied ophthalmology. In his presentations at All-Union illumination engineering conferences and in articles intended for illumination engineers (see Ref. 9), S. V. Kravkov mapped out those problems whose solution needed to be consummated through the combined effort of illumination engineers, physicists, and physiologists.

On the basis of research on the quantitative laws governing the visual process and objective methods of studying visual sensations and perception, it was pointed out that the Soviet illumination engineer is obliged to find a solution of all engineering problems, considering not only matters of engineering and economic significance, but also the requirements of the physiology of vision and illumination hygienics. This approach, which S. V. Kravkov emphasized repeatedly, he formulated most clearly in the editor's forward to the translation of the book by M. Lekish, Svet i rabota [Light and Work].

For the modern illumination engineer it is inconceivable that he should limit his thinking to the application of mere phenomenological examples and the methods of theoretical photometry, which draw upon a rather arbitrary system of optical quantities and units. It is necessary, in addition that he expand upon the techniques of quantitatively determining the action of the radiation receptors and, above all, of the visual analyzer.

The inspired foundation offered by the scientific heritage of S. V. Kravkov can serve to a great extent in arriving at the solution to this problem, one of the most basic in modern illumination engineering.

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ALEKSANDRA KORNIL'YEVNA KOVESHNIKOVA

/Following is the translation of an article by E. A. Klebanova, A. N. Komarova, and Yu. V. Bukin in Arkhiv anatomii, histologii i embriologii (Archive for Anatomy, Histology, and Embryology), Vol 39, No 11, Moscow-Leningrad, 1960, Pages 125-127.7

March 1960 was a month that marked the fulfillment of 70 years, 50 of them spent in scientific, pedagogical and public service, by Aleksandra Kornil'yevna.

A. K. Koveshnikova was born 15 March (on the old calendar) 1890 in Shatsk in the Tambovskaya guberniya, in the family of a finance department official. In 1907 she began to work as a grade school teacher in the deep forest of the Kirsanovskiy Uyezd of Tambovskaya guberniya, and in 1910 she entered as a student in the P. F. Lesgaft Advanced Courses in St. Petersburg, but these were closed in connection with the political occurrences of that year. In the fall of 1911 she continued her studies in the reopened P. F. Lesgaft Advanced Courses. During her student years A. K. Koveshnikova became interested in the human anatomy. A. A. Krasuskaya entrusted her with developing the characteristics of macroscopic innervation of muscles of various structures and function. She conducted this work in the anatomy department of the P. F. Lesgaft St. Petersburg Biology Laboratory, which sponsored the P. F. Lesgaft Advanced Courses.

On completion of the courses in 1916, Aleksandra Kornil'yevna began to work as assistant in the anatomy department (under chairman Prof. A. A. Krasuskaya) of the P. F. Lesgaft Advanced Courses, which were reorganized in 1919 as the P. F. Lesgaft Institute of Physical Training, and again in 1929 as the P. F. Lesgaft Institute of Physical Culture. At the same time she remained as a scientific member of the anatomy department (chairman A. A. Krasuskaya) of the P. F. Lesgaft Petrograd Biology Laboratory, renamed in 1918 the P. F. Lesgaft Petrograd Science Institute, and later the P. F. Lesgaft Natural Science Institute of the Academy of Pedagogical Sciences of the RSFSR. The ideas of P. F. Lesgaft and of his disciple, A. A. Krasuskaya, exerted their later influence on the scientific interests of A. K. Koveshnikova.

In 1923 A. K. Koveshnikova concentrated her attention on developing the functional-morphological characteristics of the motor organs of humans and animals. In 1924 she came forth with comparative-anatomical data on the bicep muscle of mammals and on the characteristics of its lower attachment in man, and in 1925, at the Second Congress of Zoologists, Anatomists, and Histologists of the USSR in Moscow, she presented a paper on the influence of animal statics on the form and structure of muscles. In 1928, A. K. Koveshnikova reported on the changes in form of the shoulder blades of animals in conjunction with their evolutionary transition from horizontal standing position on four limbs to vertical standing on two limbs, and in 1934 (collaborating with E. A. Kotikova) she calculated

empirically the influence of variable conditions of statics on muscular and skeletal structure.

In 1933, on the suggestion of Prof. L. A. Orbeli, A. K. Koveshnikova began, concurrently with her work at the P. F. Lesgaft Natural Science Institute, to work at the Leningrad Institute for the Health of Children and Adolescents, where she organized her own laboratory and began a rich museum of growth and development anatomy. Of unusual value in the museum were brightly colored transparent exhibits set up by A. K. Koveshnikov and her assistants, showing the blood-supply systems of individual organs in children of various ages. In the growth anatomy laboratory of the Institute for the Health of Children and Adolescents A. K. Koveshnikova studied the age characteristics of the cerebellum and (in collaboration with Ye. A. Klebanova) the blood supply of the kidneys in children of various ages. In 1936 A. K. Koveshnikova published an interesting paper "On the Blood Supply of Muscles Having Different Functions." In 1940 she established a number of morphological laws in the structure of muscles in connection with the range of activity.

In 1937, A. K. Koveshnikova was awarded the academic degree of candidate of biological sciences without defending a dissertation, and in 1940 was elevated to the academic rank of senior scientific co-worker in the specialization of human morphology.

In the years of the Great Patriotic War, 1941-1945, A. K. Koveshnikova remained at her post at the P. F. Lesgaft Natural Science Institute in the blockaded city of Leningrad. Continuing her scientific labors and working with unfailing energy, she saved and preserved the museum treasures of the institute from the enemy bombings and artillery shells. At the same time she worked as a surgical nurse in the hospital and for three years was infirmary prosecutor of the Institute for the Health of Children and Adolescents. During these years she prepared material of many sections establishing and describing the changes taking place in the internal organs of children in connection with the dystrophies of the blockade period.

In 1942, A. K. Koveshnikov was commissioned head of the anatomy laboratory of the P. F. Lesgaft Natural Science Institute of the Academy of Pedagogical Sciences of the RSFSR. While directing the laboratory, A. K. Koveshnikova posed as her own task the further development of the notions of P. F. Lesgaft. The laboratory staff under the direction of A. K. Koveshnikova continued to delve into the essence of the morphological rebuilding of human and animal bones and muscles in connection with their changes in function. Thus, they studied the growth processes and peculiarities of form, microstructure of bones and muscles of men and animals in ontogenesis, as well as the accommodation characteristics in the structure of the motor organs of animals under various conditions of experimental stress. In this work, together with the muscles, they studied the closely associated neural elements -- the motor endings, the cells of the intervertebral ganglions, and the motor nuclei of the spinal column. They also investigated the age variations of the nerve endings of the extremity muscles of animals with different locomotions, the period of myelin formation of the nerves in the extremities, the age

characteristics of the motor endings of the human tongue, the features of the motor endings of the tongue in mammals of different orders in connection with their living and eating habits.

During this period A. K. Koveshnikova published the results of her own research on the influence of changing statics and dynamics of animals on the structure of their muscles and skeleton, on the structure of the motor nuclei of the spinal column, and the enervation of the static and dynamic muscles. She determined the progress of the postembryonic development of the motor nerve endings in the muscles of men and certain mammals (in collaboration with Ye. S. Yakovleva). In 1958 she published a large summary entitled Development of the Human Nervous System in the Growth Process.

A. K. Koveshnikova rendered a great service, together with E. A. Klebanova and Ye S. Yakovleva, in writing a manual on anatomy for secondary school teachers, entitled Ocherki po funktsional'noy anatomii cheloveka [Essays on the Human Functional Anatomy] and, in collaboration with Ye A. Klebanova, a practical guide for pedagogical institutes and workers of anatomical and zoological museums, entitled Sposoby izgotobleniya anatomiceskikh muzeynykh preparatov [Methods of Preparing Anatomical Museum Exhibits]. Members of the laboratory wrote three dissertations toward fulfillment of the academic degree candidate of biological sciences.

Much of the work of A. K. Koveshnikova contributed to the further expansion and augmentation of the anatomy museum of the P. F. Lesgaft Natural Science Institute, which was founded by P. F. Lesgaft and A. A. Krasuskaya.

A. K. Koveshnikova has steadfastly devoted great energy to the dissemination of natural science information among the population of Leningrad and its surrounding area. In 1940 the executive committee of the City Council of the Leningrad Worker's. Deputies awarded a contract for this work. A. K. Koveshnikova is an active member of the Leningrad Society of Anatomists, Histologists, and Embryologists and has frequently been chosen to serve on its broad.

For outstanding scientific, academic, and public service the government awarded A. K. Koveshnikova the Order of Lenin and several medals. A. K. Koveshnikova is distinguished by modesty and simplicity in her relations with others, devotion to scientific duty, and she is an excellent comrade. She wins the respect and admiration of everyone with whom she comes in contact.

Her pupils, fellow workers, and admirers extend to Aleksandra Kornil'yevna Koveshnikova best wishes for good health and continued success in every endeavor.

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NIKOLAY MIKHAYLOVICH KARAVAYEV

Following is the translation of an unsigned article in
Izvestiya Akademii nauk SSSR -- Otdeleniye tekhnicheskikh
nauk -- Metallurgiya i toplivo / Bulletin of the Academy of
Sciences of the USSR -- Division of Engineering Sciences --
Metallurgy and Fuel, No 1, Moscow, 1961, pages 181-184.7

In the year 1960 one of the Soviet Union's foremost specialists in the chemistry and engineering of solid fuels, Corresponding Member of the Academy of Sciences of the USSR, Doctor of Engineering Sciences, Professor Nikolay Mikhaylovich Karavayev, celebrated his 70th birthday and in January of 1961 the fulfillment of 40 years of scientific activity.

Nikolay Mikhaylovich was born in 1890 in a village in the Novonikolayev Don Region. He received specialized training at the Moscow Higher Engineering Institution, within whose walls he began his scientific and pedagogical work in 1921, as assistant to Professor V. A. Ushkov on the chemistry faculty. During the forty years of his scientific-pedagogical and more than forty years of engineering activity N. M. Karavayev trained a large number of scientists and engineers, took part in the solution of a number of the weightiest problems of national economy, was a champion of the Soviet Union as a leading scientific country in the area of the chemistry and chemical development of fuel. His became a lecturer in 1926, and a professor in 1930. In 1946 N. M. Karavayev was elected as a corresponding member of the AN SSSR (Akademiya Nauk SSSR -- Academy of Sciences of the USSR). From this year on he has been departmental chairman at the Moscow Institute of Industrial Chemical Engineering.

The major portion of the research work carried on by N. M. Karavayev and his associates has been in the chemical investigation of coals and methods for their chemical refinement. This work was initiated by him in the year 1926, at the very beginning of the period of growth of coal chemistry, and it has been successfully carried out until the present day. During this period of the science of coal the way was paved from gathering together disconnected analyses of individual coals to the formation of a vast structural theory of the origin and evolution of the coal substance, resulting also in gross transformations in the technology of chemical reprocessing of solid fuels. The scientific institutions of the USSR and

Soviet scientists took an active part in these investigations and in a number of problems in this area took a leading position in the world.

Among such scientists were N. M. Karavayev and his disciples.

Numerous pupils of N. M. Karavayev, scientists, teachers, and engineers are working on the many aspects of fuel utilization. Many of these are eminent scientists and pedagogues (Corr. Member of the AN SSSR Prof. A. N. Bashkirov, Prof. I. B. Rappoport, Prof. V. I. Karzhev, Prof. V. F. Oreshko, Prof. M. S. Litvinenko, and others), many occupy leading posts in government and in industry (Prof. S. F. Kaftanov, Engineer I. R.

Chernyy, Stalin Prize Laureate, Engineer V. I. Zhunko, L. S. Zaglodin, and others). At the MIKhM (Moskovskiy institut khimicheskogo mashinostroyeniya -- Moscow Institute of Industrial Chemical Engineering) approximately 200 engineers have been trained under the guidance of N. M. Karavayev. At present Nikolay Mikhaylovich is guiding candidates at the MIKhM, at the AN SSSR, and he serves as consultant for those from the other scientific institutions and industrial concerns.

N. M. Karavayev founded the department of pyrogenic products at the Mendelyev Moscow Chemical Engineering Institute in 1926 and after the war reinstated a similar department at the MIKhM.

The content and significance of N. M. Karavayev's work are characterized by thoroughness and diversity. Together with his pupils he undertook the investigations of coals from a number of the eastern coal basins. This work is especially noteworthy now in connection with the resolutions of the Eleventh Congress of the CPSU on the development of industry in the Eastern Soviet Union. Particularly probing and thorough were the studies of the Barzas coals of the Kuznets Basin, which yielded extremely valuable information for the further expansion of the science of coal and at the same time introduced methods for their industrial refinement on a semi-mass production scale of testing and development. Of utmost value were the investigations of the Kuznets and Irkutsk basins. These studies were utilized in forming the country's second coal and metallurgical base, and they served as a basis for industrial criteria of the coals of the eastern basins, criteria which remain in use today. The logical extension of these studies was the compilation under the direction of N. M. Karavayev of a geological-coal-chemical map of the Prokopyevsk-Kiselevsk coal sites in the Kuznets basin. The drawing of this map had, in addition to its practical worth, great methodological significance. An important work was done on the comparative chemical study of weathered coals and their distinction from the brown coals. The work in coal chemistry now being carried on by N. M. Karavayev at the MIKhM and at the Institute of Mineral Fuels of the AN SSSR is devoted to the further study of coal formation.

Directly connected with the outstanding research of N. M. Karavayev on the coals of the eastern regions is his work in obtaining synthetic liquid fuel. This work is typified by diversity and exhaustive thoroughness. Investigations were conducted on all three techniques for obtaining synthetic liquid fuel: semicoking, hydrogenization, synthesis with CO and H₂ -- for the various forms of solid fuel. Work was completed to the stage of developing consolidated continuous-operation machinery. Subjected to a particularly probing investigation were liquid chemical products -- raw coal tar and its fractions, phenol products. In these investigations an important factor, over and above the accumulation of data on products never before studied, was the evolution of methods for their investigation. Many of the methods developed at that time are still found in application today in solving special problems of refining solid fuels for the purpose of obtaining raw materials for industrial organic synthesis (obtaining sulfur-free benzene and others).

For a long time N. M. Karavayev, his pupils, and fellow workers have been working on the improvement of coke production. This work was begun in 1926 by a group at the F. E. Dzerzhinskiy Heat Engineering Institute set up to improve the operation of coke factories in the formative period of this industry in the USSR. In 1936 N. M. Karavayev, replacing Academician A. Ye Poray-Koshitz, directed the operations of the By-Product Coke Commission, created in the Department of Engineering Sciences of the AN SSSR and intended for the active development of chemical research in the by-product coke industry. On the basis of the work of the commission N. M. Karavayev set up a pyrolysis products laboratory at the Institute of Combustible Minerals of the AN SSSR. The work begun here was continued during the war right in the industrial concerns themselves and after the war was carried over to the MIKhM, where it has been carried on with admirable success even to the present day.

The accomplishments of N. M. Karavayev in the area of by-product coke probed into many aspects of this industry and was consummated with the invention of a new type of vertical continuous-operation coke oven, in which the coal was compressed to establish conditions suitable for obtaining high-grade coke from coals that under ordinary conditions would not yield coke.

In the area of absorption-desorption processes Nikolay Mikhaylovich supervised the development method in which a small refrigeration unit was used for the intensification of these processes. This method was perfected during the war and has come into application in the coke industry only very recently (see the resolution of the All-Union Conference of Coke Chemists, October 1959). As for the new scheme proposed by N. M. Karavayev for the refining of crude benzene, having been but partially (as part of the organization of the process of rectification of benzene products by a semi-continuous scheme) incorporated into the war effort at the Ural and Eastern factories, it enabled industry to cope successfully with the problems of obtaining defense products, despite the temporary loss of factories in the south. Many aspects of this new scheme, such as the procurement of thermopolymerizations of dicyclopentadiene, the production of pure products through segregation of narrowly defined fractions from crude benzene prior to purification, the vapor-phase purification of benzene products, ways to obtain coumarone and indene, and other techniques have either been already incorporated into industry or are approaching realization. After the war the departmental staff at the MIKhM worked on this scheme in application to the rectification of naphthalene, and it was utilized in obtaining raw material for organic synthesis (Phthalium anhydride, etc.).

In the part of his work which deals with the problems of rectification, Karavayev's later work reflects yet another characteristic side of his research, the tendency, after exhaustive analysis, to uncover hidden potentials in the available industrial facility, thus stepping up the output of the process.

In addition to the development of schemes for the rectification of benzene and naphthalene, methods have also been developed, as stated,

for their purification, specifically in the vapor phase above contact substances. This method (on which an author's abstract has been written jointly with D. D. Zykov and N. B. Kondukov) is now in operation at the Makeyev by-product coke factory. In the near future a process developed earlier -- as part of the over-all scheme of benzene refinement -- for obtaining technical dicyclopentadiene, a new crude product for the synthesis of chemical substances used in agriculture, will also be put into operation in the factories in the East. The work being done in coke chemistry is enjoying considerable expansion in the department directed by N. M. Karavayev in the special problems laboratory of the MIKhM.

Besides the projects named above, the following fundamental investigations have been under way for the last ten years at the MIKhM; investigation of the process of rectification of coal tar and its fractions, the segregation of multicomponent mixtures by the method of semi-continuous rectification, the mechanism of plate processes and development of a procedure for calculating the number of rectification column plates, recovery of benzene hydrocarbons from coke gas under pressure, heat exchange between coke and gas and development of a procedure for determining the heat-transfer coefficient in granular beds, investigations of the operation of slate-distillation tunnel kilns and kilns for the semi-coking of slates with a direct-flowing heat transfer medium.

Together with the pedagogical and scientific activity only briefly outlined in the above paragraph, Nikolay Mikhaylovich has contributed a great deal to the literature. Personally and in collaboration with his co-workers he has published about a hundred papers. A number of publications and books have been put out with his participation and under his editorial supervision, in particular, the textbook Mashiny i apparaty koksokhimicheskogo proizvodstva [Machines and Equipment Used in the By-Product Coke Industry], and others. As editor, he contributed to the publication of the journal Khimiya tverdogo topliva (Solid Fuel Chemistry). N. M. Karavayev is currently a member of the editorial board on the journals Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk [Bulletin of the AN SSSR, Division of Engineering Sciences] and Koks i khimiya (Coke and Chemistry).

Nikolay Mikhaylovich Karavayev takes an active part in the popular scientific life of the country. For many years he has been one of the directors in the Moscow division of the D. I. Mendeleev All-Union Chemical Society and permanent chairman of its coal chemistry section. N. M. Karavayev devotes great energy to the All-Union Society for the Dissemination of Political and Scientific Information, serving as chairman of the Academic Council of the Polytechnic Museum and as lecturer on the problems of fuel utilization.

The many people working in the area of coal chemistry, especially in the scientific study of the coal basins of the east, avail themselves extensively of consultations with N. M. Karavayev and continue the way that he has pointed in the study of coals from the eastern basins. Nikolay Mikhaylovich is a member of the Commission for the Development of the By-Product Coke Industry affiliated with the State Scientific-Engineering

Committee of the Council of Ministers of the USSR and is a consultant of the Academy of Sciences of the Tadzhik SSR. In his consultant capacity he has helped to develop methods for the utilization of brown coals from the Aleksandriya site (Academy of Sciences of the Ukrainian SSR).

All that has been stated shows Nikolay Mikhaylovich Karavayev to be a scientist and patriot of our fatherland, the socialistic structure of which he has served faithfully, right from the early years of the First Five-Year Plan, devoting all his energy and profound knowledge to the growth of science and technology in the Soviet Union.

I. S. ALEKSANDROV

Following is the translation of an unsigned article in Gigiyena truda i professional'nyye zabolevaniya (Industrial Hygiene and Occupational Illness), Vol 5, No 2, Moscow, 1961, page 62.

In June 1960 Professor Il'ya Stepanovich Aleksandrov died at the age of 58, following a grave illness.

Throughout his entire lifetime Il'ya Stepanovich labored productively to the glory and honor of his socialist fatherland, which gave him, one born in a Christian environment, a higher education and the opportunity to pursue his scientific work.

In 1919, still short of 17 years of age, Aleksandrov volunteered for the ranks in the Red Army. Later, in the first days of July 1941, having already become established as a lecturer and eminent specialist, Il'ya Stepanovich again volunteered in the national militia.

Il'ya Stepanovich Aleksandrov left a noteworthy mark in industrial toxicology. From 1932 until 1949, with one interruption when he entered active service in the army, Il'ya Stepanovich worked in the Toxicological laboratory of the Leningrad Institute of Industrial Hygiene and Occupational Illness. His study of the functional state of the vegetative nervous system in connection with animal poisoning by industrial poisons is of utmost significance. He developed a number of techniques, many of which have been successfully applied in various modifications by industrial toxicologists.

Il'ya Stepanovich published eighteen papers on the problems of industrial toxicology. A considerable portion of this doctoral dissertation on the topic "Effect on the Salivary Glands of Substances that Stimulate the Central Nervous System" was based on toxicological material.

The pedagogical activity of Il'ya Stepanovich is reflected in two publications, Rukovodstvo k prakticheskim zanyatiyam po fiziologii /A Guide to Applied Projects in Physiology/ and Spravochnik dlya pedagogov-biologov /Manual for Teachers of Biology/, of which he was coauthor.

While conducting his tremendous pedagogical and scientific work, Il'ya Stepanovich also found time for considerable public service; he was frequently chosen to serve on the party bureau of the CPSU, was secretary of the party bureau faculty, and was chairman of the local committee of the Gertsen Herzen Institute.

Il'ya Stepanovich remained always exemplary as a good comrade, tireless worker, a diligent public servant, and a man of modesty, one whose energies never failed in carrying out the service of his fatherland.

NATAL'YA GEORGIYEVNA SHALYA

Following is the translation of an unsigned article in
Gigiyena truda i professional'nyye zabolevaniya (Industrial
Hygiene and Occupational Illness), Vol 5, No 1, Moscow,
1961, Page 60.]

N. G. Shalya was born in 1900 in Moscow; in 1925 she graduated from the School of Medicine of Moscow University.

N. G. Shalya has devoted 35 years of applied scientific effort to the business she loved most, the betterment of working conditions of industrial workers in the USSR. From 1925 to 1929 she worked as sanitary doctor in the Sverdlovskaya oblast. From 1929 to 1937 she was stationed first in the Kushinskiy rayon of the Nizhne-Tägil'skiy okrug, then in the Bronnitskiy rayon of the Moscow Oblast, as labor sanitation inspector with the Zlatoustovsk Department of Labor in the Stalinskiy rayon of Moscow, then with the Moscow Municipal Committee of Trade Unions of the Machinery Industry; from 1937 to 1941 she was medical hygienist in the laboratory of the Moscow Institute of Labor Safety. Since 1941 N. G. Shalya has been working as state sanitation inspector of industrial hygiene, first in the Stalinskiy rayon of Moscow, then later with the Moscow Municipal Sanitation-Epidemiological Station.

Natal'ya Georgiyevna Shalya is a highly qualified industrial sanitation expert, with a remarkable knowledge in the various branches of hygienic science and in technical problems connected with her duties; she is one of the leading sanitation practitioners in the area of industrial preventive sanitation in Moscow and renders a great service with the State Sanitary Inspection of the Ministry of Public Health of the RSFSR, working on preventive sanitary control in the republic.

Characterized by an exceptional understanding of principles, profound knowledge, and a wealthy experience, she has long been held in the greatest esteem by her fellow workers and the engineering and technical personnel of planning organizations and industrial concerns.

The work of N. G. Shalya has promoted better health conditions for workers in many industries.

With extreme interest and devotion she has guided young sanitary practitioners, transmitting to them her knowledge and experience, lending assistance without refusal to all who turned to her.

We wish Natal'ya Georgiyevna good health, unfailing energy, and many years of fruitful activity to the further glory of her country.

RAFAIL SAMUILovich GERSHENOVICH

Following is the translation of an unsigned article in
Meditinskiy zhurnal Uzbekistana [Uzbekistan Medical Journal],
No 8, Tashkent, 1960, pages 89-90.

On 23 June 1960 the foremost pediatrician of the Uzbek Republic, a devoted servant of science, Doctor of Medical Sciences, Professor Rafail Samuilovich Gershenovich, died at the age of seventy-two.

R. S. Gershenovich obtained his medical degree in 1914 and worked ever since without interruption in Uzbekistan. At the Caspian front he took part in the battles near the Kaakhka Stations in the capacity of chief doctor of the field hospital.

Rafail Samuilovich was one of the organizers of maternity and childhood protection in Uzbekistan. Through his direct efforts the first children's medical-prophylactic institutions were opened, as was the children's clinic of the Tashkent Medical Institute, where he served from the day of its founding, first as assistant, then as lecturer, and finally in 1930 as professor.

The scientific activity of Prof. Gershenovich had many sides. As an outstanding authority on marginal childhood pathology, he was able to encompass in his work the most urgent problems of child health and welfare. He wrote more than 100 scientific papers and five monographs. His monograph on childhood leishmaniasis and children's diseases in the warm climates are particularly valuable for clinicians and medical practitioners.

In a series of papers R. S. Gershenovich gave proof and scientific substantiation of the dangers to which isolated and primitive peoples are exposed wherever they hold on to the old way of life. He delved into such problems of importance to Central Asia as acute and chronic digestive disorders, dysentery, pellagra, pneumonia, tuberculosis, typhoid and others.

Prof. Gershenovich always managed to tie his scientific work in with the practical issues of protecting the health of the republic, which led to the proper organization, growth, and development of child health and welfare in Uzbekistan. His labors proved of utmost value in medical science; and in the practical aspect they promoted a notable decline in the illness and suffering of children, particularly from diseases such as diarrhea, childhood leishmaniasis, pellagra.

Through his continuous and exceptionally productive scientific, social, and pedagogical activity Rafail Samuilovich trained two doctors and thirty candidates of medical sciences, mainly from his own locals, who even today are working as professors, lecturers, and assistants in pediatric departments.

Under the direction of Prof. Gershenovich his pupils have published more than 200 scientific papers.

A wonderful clinician and great scientist, R. S. Gershenovich spared no effort in rendering aid to the Ministry of Public Health in the job of alleviating the illness and suffering of children.

A man of great spirit, an outstanding humanitarian, gentle and kind in nature, Rafail Samuilovich was accorded universal respect and affection, both by his patients and by his students and fellow doctors.

For his highly productive service in the field of Soviet medicine and training of others from his republic, Prof. Gershenovich was awarded the title of Honored Scientist, he was presented the Honorary Degree of the Supreme Soviet of the Uzbek SSR and several medals.

The shining memory of Rafail Samuilovich Gershenovich will live long in our hearts.

V. V. YAKHONTOV

Following is the translation of an article by V. I. Servinov in Zashchita Rasteniy ot Vrediteley i Bolezney (Protection of Crops Against Pests and Diseases), Vol 5, No 1, Moscow, 1960, Page 62.

On 11 February, at the joint grand meeting of the Scientific Councils of the Tashkent SKhI /Sel'skokhozyaystvennyy institut -- Agricultural Institute/ and the Institute of Zoology and Parasitology of the AN UzSSR (Akademiya Nauk Uzbekskoy SSR -- Academy of Sciences of the Uzbek SSR), tribute was paid to the distinguished entomologist, Corresponding Member of the Academy of Sciences of the Republic, Doctor of Biological Sciences, Professor Vladimir Vladimirovich Yakhontov, in honor of his sixtieth birthday and thirty years of scientific, pedagogical, and public service.

Essentially, all of V. V. Yakhontov's productive working lifetime, since 1926, has been associated with Uzbekistan. He was head of the entomology department of the experimental station in Bukhar, then worked at the Crop Protection Station of the All-Union Scientific Research Institute of Cotton, where he obtained valuable data on the biology of many cotton and alfalfa pests and on techniques of entomological research.

For 26 years V. V. Yakhontov has been director of the department of zoology and entomology of the Tashkent SKhI, training scientists and specialists for industry. Under his supervision dissertations have been successfully defended by one doctor and more than twenty candidates of science. At the same time Vladimir Vladimirovich has been conducting exhaustive investigations in the area of theoretical and applied entomology. For the last few years he has been analyzing the problems of short-duration prognoses of aphid multiplication, the application of coccinellides in the control of certain cotton and alfalfa pests, increasing the vitality of entomophags by the crossing of geographically isolated breeds, and he has published many papers on the classification of the physopods.

On his birthday he was credited with the publication of approximately 300 scientific works, including several monographs: on the fauna of the cotton plant (1931), on the phytomyzus alfalfa pest (1934). His last -- Vrediteli sel'skokhozyaystvennykh rasteniy i produktov v Sredney Azii i bor'ba s nimi /Pests of Agricultural Crops and Products in Central Asia and Their Control/ (1953) is the standard reference of entomologists in Central Asia and is a scientific textbook for students. In the near future it is to be translated into the Russian and Uzbek languages. A collection of the scientific papers from the Zoology Institute of the AN UzSSR and Tashkent SKhI is being published and is to be dedicated to V. V. Yakhontov.

V. V. Yakhontov has been repeatedly commissioned for work as a specialist outside his own country and was a delegate to the Tenth International Congress on Entomology.

At the grand meeting a decree was issued by the Presidium of the Supreme Soviet of the Uzbek SSR awarding V. V. Yakhontov the title of Honored Scientist of the Republic. Previously he had been honored with the Order of Lenin and various medals. The celebrant was hailed by the chairman of the various scientific institutions, institutions of higher learning, ministries of industrial and public organizations, and students. At his home he received more than 250 telegrams and letters from different organizations and institutions, from working comrades, former pupils, scientists, industrial representatives from other republics and regions of the Soviet Union, from China, Vietnam, Poland, Czechoslovakia, Hungary, Bulgaria and Rumania.

KIRIAK SAMSOMOVICH ZAVRIYEV

Following is the translation of an unsigned article in
Promyshlennoye stroitel'stvo (Industrial Structural Design),
Vol 39, No 1, Moscow, 1961, Page 57.

In January 1961, a 70th birthday and 50 years of diligent productivity were celebrated by Active Member of the Academy of Building and Architecture of the USSR, Academician of the AN GSSR (Akademiya Nauk Gruzinskoy SSR -- Academy of Sciences of the Georgian SSR), Doctor of Engineering Sciences, Prof. Kiriak Samsonovich Zavriyev.

The name of K. S. Zavriyev, foremost scientist, pedagog, designer and builder, and public servant, is known widely throughout the Soviet Country and the rest of the world.

After completing the St. Petersburg Institute of Highway Engineers in 1914, K. S. Savriyev remained there as an instructor in structural mechanics and worked concurrently building bridges for the military service.

In 1918, K. S. Zavriyev took part in the organization of the Odessa Polytechnic Institute and served there as dean of the architectural faculty, moving in 1921 to Tbilisi to work at the Polytechnic Institute.

In 1929, K. S. Zavriyev participated in the formation of the Caucasian Institute of Structures (now the Vinter Tbilisi Chemical-Pharmaceutical Scientific Research Institute), where he worked for 13 years as associate director in the science division. In addition, he continued his pedagogical activity at the Architectural Engineering Institute of Georgia and the Caucasian Institute of Highway Engineers. Since 1945, K. S. Zavriyev has been directing the Institute of Architecture of the AN GSSR, which he organized.

K. S. Zavriyev's practical experience in the field of architecture began while he was yet a student. In the years of the First World War, during the period of reconstruction, and later, he planned and designed a great many of the larger bridges. During the Great Patriotic War, K. S. Zavriyev took part in the building of defense structures and in reconstruction projects in the Crimea, on the Kuban River, and in the Northern Caucasus.

After the war K. S. Zavriyev rendered considerable aid to architecture by his consultations and participation in the solution of complex practical problems.

The scientific activity of K. S. Zavriyev has been marked by its diversity and generality. He has published more than 100 scientific works, covering the theory of reinforced concrete, prefabricated and prestressed constructions, light reinforced concrete, the theory of arched spans. A number of important papers have been published by K. S. Zavriyev on the dynamics and earthquake resistance of structures. He is the recognized founder of the dynamic theory of earthquake resistance, which has gained so much recognition in recent years. A number of his papers have been published outside the Soviet Union.

K. S. Zavriyev's works are characterized by deep penetration into the physical essence of phenomena, rigorousness of scientific analysis, the application of research to concrete practical situations, lucidity and unambiguity of presentation.

The scientific activity of K. S. Zavriyev has attained wide recognition. In 1935 he was granted the degree of doctor of engineering sciences without defending a dissertation. In 1941 he was elected as an active member of the AN GSSR and in 1956 as an active member of the Academy of Building and Architecture of the USSR. In 1957, as representative of Soviet science, K. S. Zavriyev took part in the International Conference on Prestressed Reinforced Concrete in the USA, and in 1960 he headed the USSR delegation to the World Conference on Earthquake Engineering in Japan.

In addition to his scientific, pedagogical, and practical work, K. S. Zavriyev finds time for considerable public and political service. For more than 25 years, as permanent chairman of the Georgian Republic Board of the Scientific-Engineering Society of the Building Industry, he was a member of the central administration of the Scientific-Engineering Society of the Building Industry and is an honorary member of this society. K. S. Zavriyev has frequently been chosen and is presently a delegate of the Supreme Soviet of the GSSR and Tbilisi Municipal Council of Workers' Deputies. He is a member of the Committee on World Defense. The Communist Party and Soviet government place high esteem on the service of K. S. Zavriyev. He was honored with Orders of Lenin, citations for the First Great Patriotic War, the Worker's Red Flag, the Badge of Honor, and a number of medals.

At the present time K. S. Zavriyev is head of the Institute of Architecture of the AN GSSR, chairman of the earthquake engineering section of the Presidium of the Academy of Building and Architecture of the USSR, and professor at the Lenin Georgian Polytechnic Institute. His profound erudition, integrity, sensitivity, and modesty have placed him in a position of authority and high esteem in the engineering and technological world. In recognition of his seventieth birthday, we extend to K. S. Zavriyev our best wishes for long years of good health, vitality, and successful accomplishment.

PROFESSOR N. N. KUKIN

Following is the translation of an unsigned article in
Khirurgiya [Surgery], No 9, Moscow, 1960, Page 150.]

Doctor of Medical Sciences, Professor Nikolay Nikolayevich Kukin celebrated his 60th birthday.

N. N. Kukin was born 20 April 1899 in the family of a public servant in the city of Toropets, Kalinin. In 1918, following completion of his course work at the Pskov Seminary, he was admitted as a student in the school of medicine of Moscow University, and upon graduation in 1923 began to work as a non-resident student of the school surgical clinic of Moscow University, under the chairmanship of I. K. Spizharnyy. In 1924, Nikolay Nikolayevich transferred to the hospital surgical clinic directed by A. V. Martynov. Here he completed his training as clinical surgeon and scientist.

In 1927 he moved to the city of Teykovo in Ivanovo, where for four years he worked as hospital physician in the surgical department, then as departmental chief and head doctor.

In 1931 he was admitted as a candidate in the surgical clinic of the sanitation hygiene school of the First Moscow Medical Institute, under the direction of V. R. Khesin.

In 1935 he defended his dissertation, Patogeneza, klinika i lecheniye obliteriruyushchego endoarteriita [Pathogenesis, Clinical Diagnosis, and Treatment of Obliterating Endarteritis].

From 1937 until 1946, Nikolay Nikolayevich worked as a member of the scientific staff of the Institute of Surgery of the Academy of Medical Sciences of the USSR, under the direction of A. V. Vishnevskiy.

From 1940 until 1946 N. N. Kukin served in the Soviet Army. He was awarded Orders of the Red Star, of the Great Patriotic War, and five medals.

After the demobilization Nikolay Nikolayevich returned once again to the Institute of Surgery. Here he wrote and successfully defended (1949) his doctoral dissertation, Krovotochashaya grudnaya zheleza (The Hemorrhaging Mammary Gland).

In 1951 N. N. Kukin was elected departmental, later faculty chairman of the department of surgery of the Kishinev Medical Institute. Here he labored fruitfully for five years as clinical director, devoting considerable time to the fostering of medical students. Under his direction the clinical staff published 22 scientific papers, defended three candidate theses and one doctoral dissertation.

Since 1956, N. N. Kukin has been serving as head surgeon of the Moscow-Kursk-Donbas Railroad.

N. N. Kukin is the author of 50 scientific works, including the monograph Krovotochashaya grudnaya zheleza (1949).